

# NEWS FROM EUROPE ON ASPHALT RUBBER

By

Jorge B. Sousa

# NEW AR BELNDING EQUIPMENT

# HOTMIX AR BLENDING EQUIPMENT



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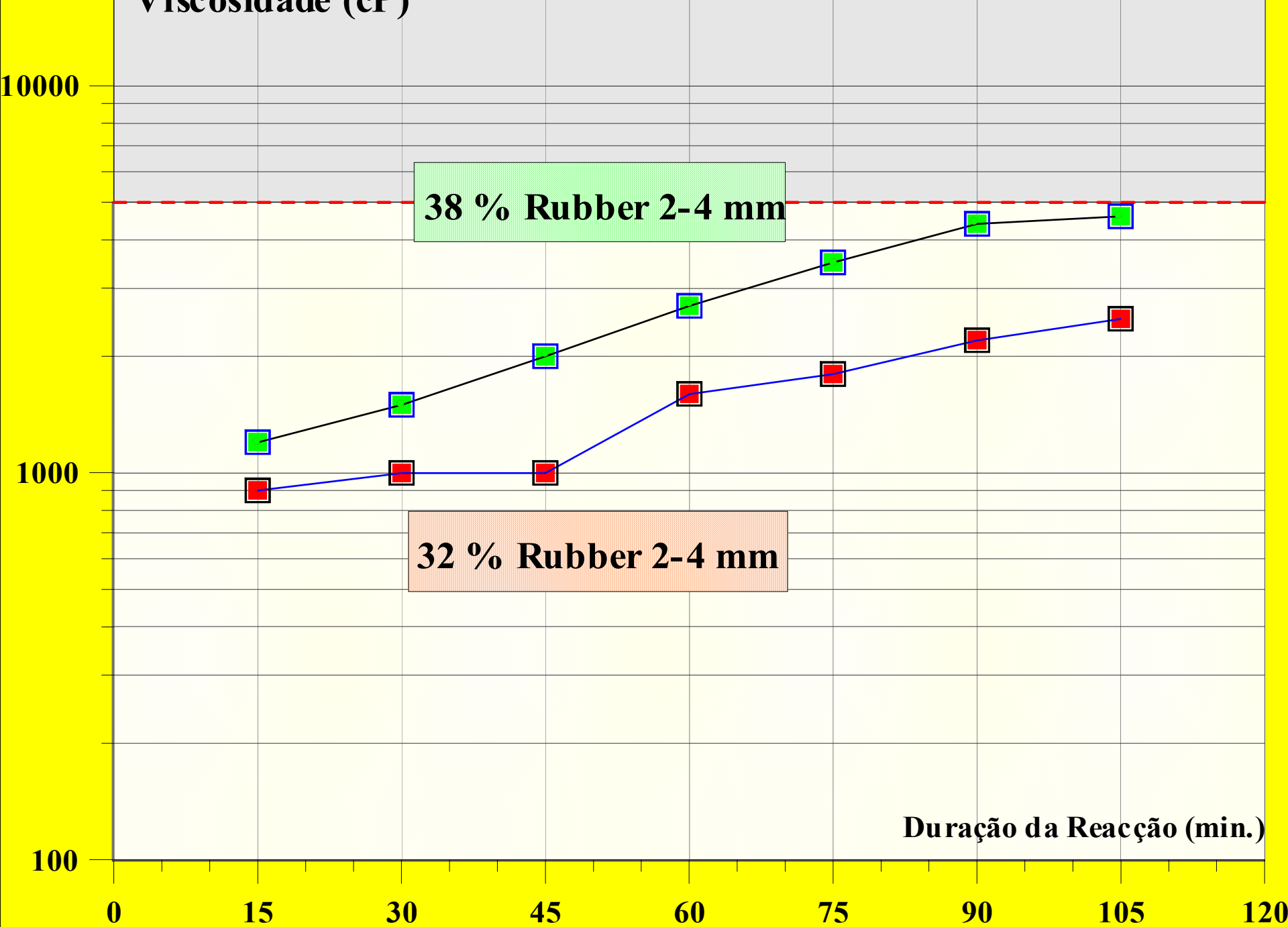
# Specification issues?

- AR *that comes just from the mixer* in the new equipment
- results: Viscosity: 3000 cPa
- Pen: 23
- Softening Point: 62
- Resilience: 36

# NEW FRONTIERS ON ASPHALT RUBBER

# Partners

- Consulpav and RECIPAV were contracted by Acoustic Control
- Acoustic Control contracted by Traffic & Public Transport Authority, City of Gothenburg, Swedish Tire Recycling Administration (SDAB) and SKANSKA to develop this new mix with the main goal to reduce noise.

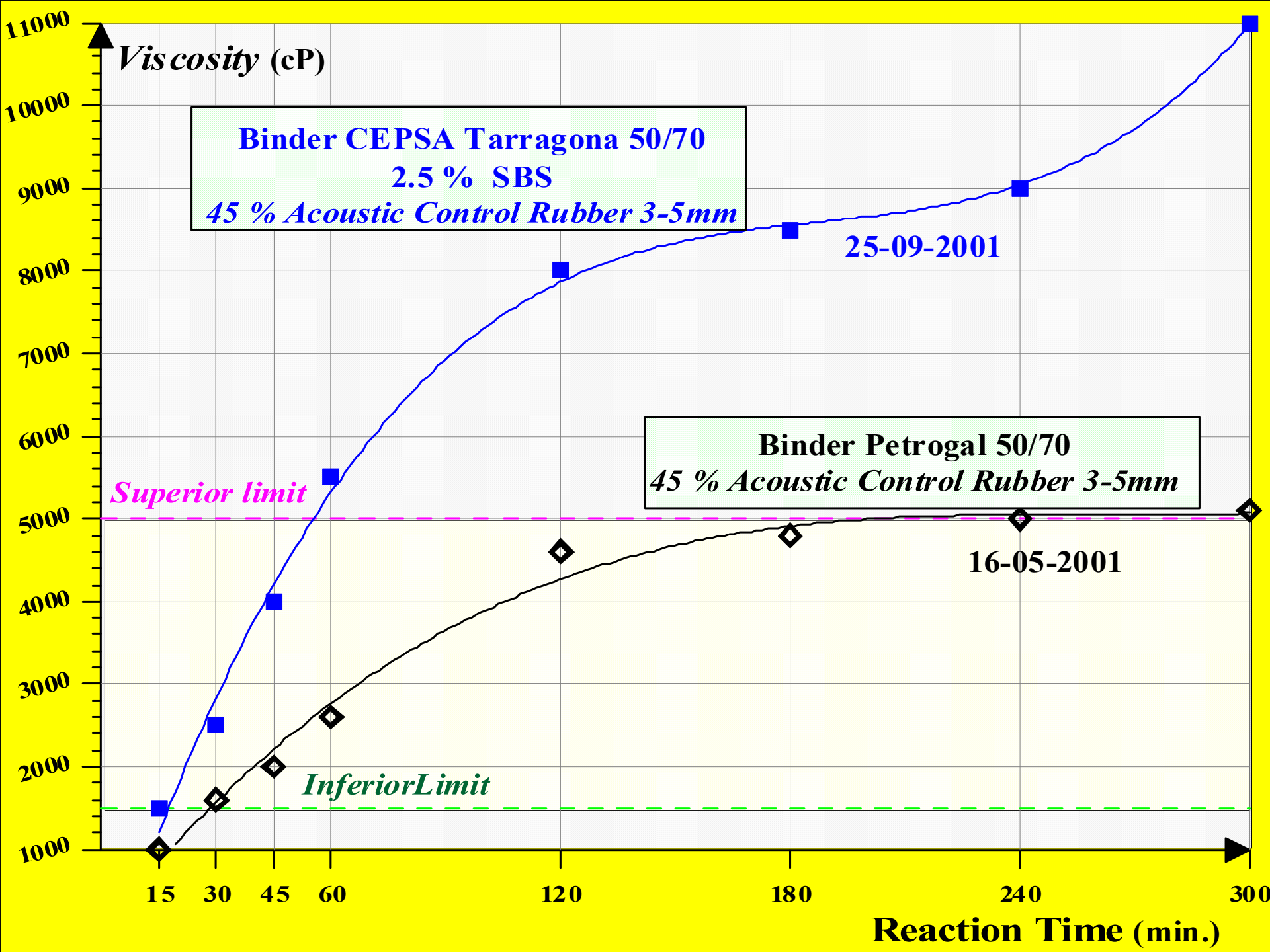


**38 % Rubber 2-4 mm**

**32 % Rubber 2-4 mm**

**Duração da Reacção (min.)**





# Ultra Low Sound Pavement

- Binder 45% crumb rubber
- Granite Aggregate (ultra open gradation)
- 1 % Portland Cement
- 18% binder by weight of mix!!!!

# Other Studies

- Air Pollution on Paving
  - All values much lower than Swedish norms
- Noise Reduction
  - Obtained 4 to 7 db reduction ---- 11 dB possible
- Fatigue
  - 40 to 60 times better then Open garded
- Shear Resistance
  - Low





# Shear Machine







FIRST AR OPEN GRADED IN  
EUROPE



# OPEN GRADED ON AEA FREEWAY





# OPEN GRADED ON AEA FREEWAY



NEW POROUS AR OPEN  
GRADED

# POROUS GRADATION

- 24 % air void content
- More open gradation
- 8.5 % AR binder
- 18% crumb rubber content (#16 mesh with lots of #30 mesh)
  - 50% truck tires
  - 50% car tires

# CANTABRO TEST OK?

- LA Abrasion machine
- 60 C temp
- Marshall Specimens
  - lost mass much lower then with polymer binders

Crio vs  
Ambient  
grinding vs  
Source of Crumb Rubber

Viscosidade (cP)

Betume 50/70 CEPSA / Huelva

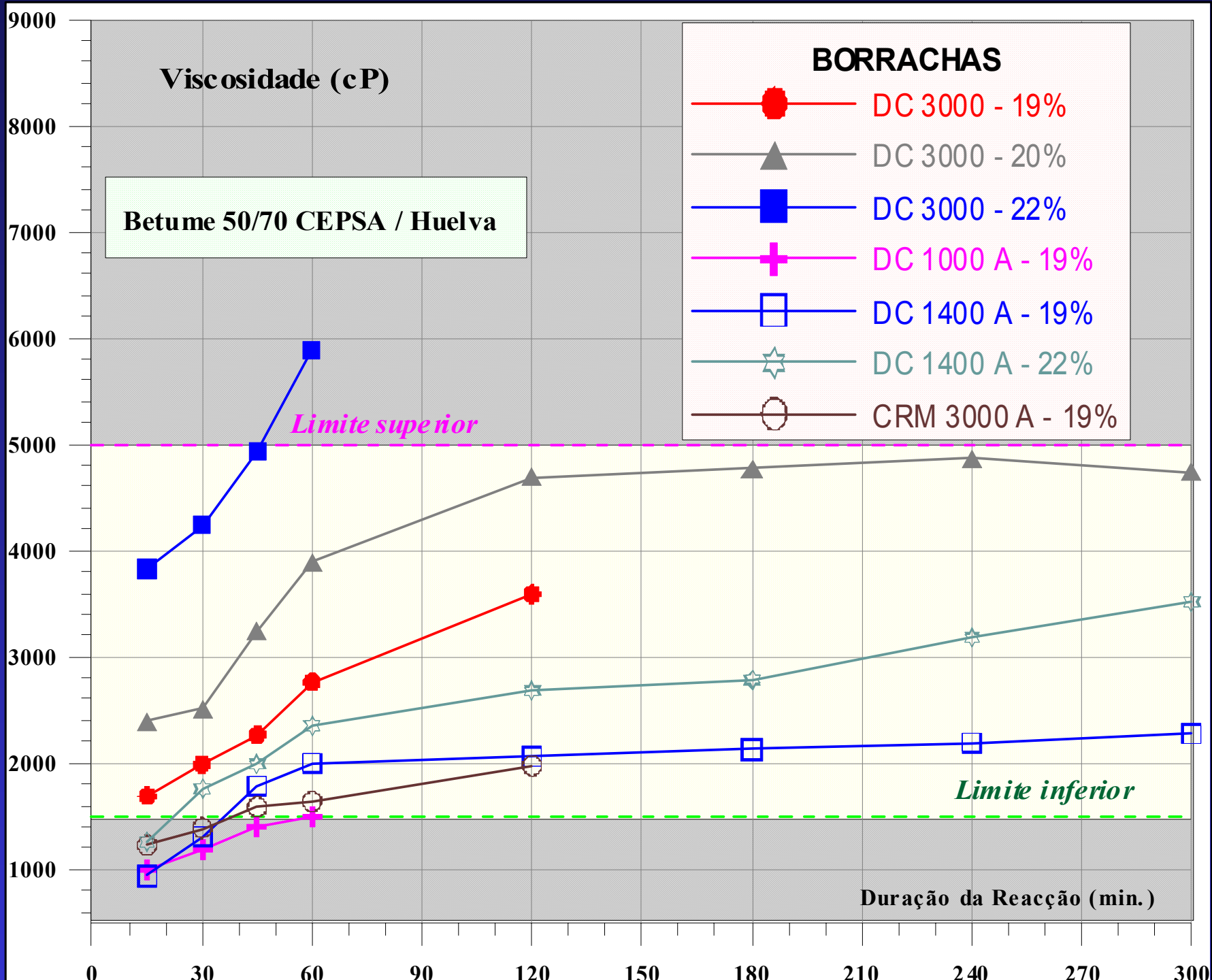
### BORRACHAS

- DC 3000 - 19%
- DC 3000 - 20%
- DC 3000 - 22%
- DC 1000 A - 19%
- DC 1400 A - 19%
- DC 1400 A - 22%
- CRM 3000 A - 19%

*Limite superior*

*Limite inferior*

Duração da Reacção (min.)



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